

# I-Chao Shen

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<https://jdily.github.io>

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## Research Interests

Computer graphics, vector graphics, data-driven 2D/3D geometry analysis and processing, machine learning.

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## Education

<b>National Taiwan University</b> <i>Ph.D. in Computer Science</i> Advisor: Bing-Yu Chen. Thesis: 2D Visual Content Design Driven by Human-Guided Optimization	<b>Taipei, Taiwan</b> <i>Sep 2017 - Dec. 2020</i>
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<b>National Taiwan University</b> <i>Master in Information Management and MBA</i> Advisor: Bing-Yu Chen. Thesis: Perspective-aware Warping for Seamless Stereoscopic Image Cloning	<b>Taipei, Taiwan</b> <i>Sep 2009 - June 2011</i>
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<b>National Taiwan University</b> <i>Bachelor in Information Management</i>	<b>Taipei, Taiwan</b> <i>Sep 2005 - June 2009</i>
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## Experiences

<b>Project Assistant Professor</b> , Tokyo, Japan Dept. of Creative Informatics, The University of Tokyo	<i>Sep. 2022 - Mar. 2023</i>
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<b>Postdoctoral researcher - JSPS Foreign Researchers Fellowship</b> , Tokyo, Japan Host : Takeo Igarashi	<i>Dec. 2020 - Aug. 2022</i>
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<b>Research Visitor - JST CREST Project</b> , Tokyo, Japan Supervisor : Takeo Igarashi	<i>Feb 2018 - July 2018, Aug 2019</i>
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<b>Research Assistant - CMLab, National Taiwan University</b> , Taipei, Taiwan Supervisor : Bing-Yu Chen	<i>Apr 2017 - July 2017</i>
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<b>Research Assistant - Imager Lab, The University of British Columbia</b> , Vancouver, Canada Supervisor : Alla Sheffer	<i>Sep 2014 - Mar 2017</i>
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<b>Research Intern - Imagination Lab, Adobe Research</b> , San Jose, CA Supervisor : Nathan Carr, Duygu Ceylan, Zhaowen Wang	<i>May 2015 - Aug 2015</i>
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<b>Research Assistant - CITI, Academia Sinica</b> , Taipei, Taiwan Supervisor : Wen-Huang Cheng	<i>Sep 2011 - July 2014</i>
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## Publications

<b>360MVSNet: Deep Multi-view Stereo Network with 360 ° Images for Indoor Scene Reconstruction</b> Ching-Ya Chiu, Yu-Ting Wu, <u>I-Chao Shen</u> , Yung-Yu Chuang to appear in IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023 (Algorithm Track)
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<b>StyleFaceUV: a 3D Face UV Map Generator for View-Consistent Face Image Synthesis</b> Wei-Chieh Chung, Jian-Kai Zhu, <u>I-Chao Shen</u> , Yu-Ting Wu, Yung-Yu Chuang to appear in The British Machine Vision Conference (BMVC) 2022
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**ODEN: Live Programming for Neural Network Architecture Editing**

Chunqi Zhao, [I-Chao Shen](#), Tsukasa Fukusato, Jun Kato, Takeo Igarashi  
in proceeding of ACM Intelligent User Interfaces (IUI) 2022

**Per Garment Capture and Synthesis for Real-time Virtual Try-on**

Toby Chong, [I-Chao Shen](#), Nobuyuki Umetani, Takeo Igarashi  
in proceeding of User Interface Software and Technology (UIST) 2021

**Data-driven Sketch Beautification with Neural Feature Representation**

[I-Chao Shen](#)  
IEEE Computer Graphics and Applications (CG&A) 2021

**ClipGen: A Deep Generative Model for Clipart Vectorization and Synthesis**

[I-Chao Shen](#), Bing-Yu Chen  
IEEE Transactions on Visualization and Computer Graphics (TVCG) 2021

**Multi-Resolution Shared Representative Filtering for Real-Time Depth Completion**

Yu-Ting Wu, Tzu-Mao Li, [I-Chao Shen](#), Hong-Shiang Lin, Yung-Yu Chuang  
High-Performance Graphics (HPG) 2021

**ClipFlip : Multi-view Clipart Design**

[I-Chao Shen](#), Kuan-Hung Liu, Li-Wen Su, Yu-Ting Wu, and Bing-Yu Chen  
Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:2008.12933 [cs.GR]

**Interactive Optimization of Generative Image Modeling using Sequential Subspace Search and Content-based Guidance**

Toby Chong Long Hin\*, [I-Chao Shen](#)\*, Issei Sato, and Takeo Igarashi (\*: joint first authors)  
Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:1906.09840 [cs.GR]

**ZomeFab: Cost-effective Hybrid Fabrication with Zometools**

[I-Chao Shen](#), Ming-Shiuan Chen, Chun-Kai Huang, and Bing-Yu Chen  
Computer Graphics Forum, Volume 39, Issue 1, Feb 2020

**Director-360: Introducing Camera Handling to 360 Cameras**

Hao-Juan Huang, [I-Chao Shen](#), and Liwei Chan  
in proceeding of MobileHCI 2020

**Perception-Driven Semi-Structured Boundary Vectorization**

Shayan Hoshyari, Edoardo Dominici, Alla Sheffer, Nathan Carr, Duygu Ceylan, Zhaowen Wang, [I-Chao Shen](#)  
ACM Transactions on Graphics (Proceedings of SIGGRAPH 2018).

**High-resolution 360 Video Foveated Stitching for Real-time VR**

Wei-Tse Lee\*, Hsin-I Chen\*, Ming-Shiuan Chen, [I-Chao Shen](#) and Bing-Yu Chen  
Computer Graphics Forum (Proceedings of Pacific Graphics 2017)

**A Scalable Active Framework for Region Annotation in 3D Shape Collections**

Li Yi, Vladimir G. Kim, Duygu Ceylan, [I-Chao Shen](#), Mengyan Yan, Hao Su, Cewu Lu, Qixing Huang, Alla Sheffer, and Leonidas Guibas  
ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2016)

**Retargeting 3D Objects and Scenes with a General Framework**

Chun-Kai Huang, Yi-Ling Chen, [I-Chao Shen](#), and Bing-Yu Chen  
Computer Graphics Forum (Proceedings of Pacific Graphics 2016)

**Data-driven Handwriting Synthesis in a Conjoined Manner**

Hsin-Yi Chen, Tse-Ju Lin, [I-Chao Shen](#), and Bing-Yu Chen  
Computer Graphics Forum (Proceedings of Pacific Graphics 2015)

**Gestalt Rule Feature Points**

[I-Chao Shen](#) and Wen-Huang Cheng  
IEEE Transactions on Multimedia (TMM), 17(4), pp. 526-537, 2015

**Geometrically Consistent Stereoscopic Image Editing using Patch-based Synthesis**

Sheng-Jie Luo, Ying-Tse Sun, I-Chao Shen, Bing-Yu Chen, and Yung-Yu Chuang

IEEE Transactions on Visualization and Computer Graphics (TVCG), 21(1), pp. 56-67, 2015

**Stroke-guided Image Synthesis for Skeletal Structure Editing**

Sheng-Jie Luo, Chin-Yu Lin, I-Chao Shen, and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2013)

**Perspective-Aware Warping for Seamless Stereoscopic Image Cloning**

Sheng-Jie Luo, I-Chao Shen, Bing-Yu Chen, Wen-Huang Cheng, and Yung-Yu Chuang

ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2012).

## Technical Reports and Preprints

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**NeRF-In: Free-Form NeRF Inpainting with RGB-D Priors**

I-Chao Shen<sup>\*</sup>, Hao-Kang Liu<sup>\*</sup>, Bing-Yu Chen (<sup>\*</sup>: joint first authors)

arxiv preprint ([arxiv:2206.04901](https://arxiv.org/abs/2206.04901))

**AutoPoly: Predicting a Polygonal Mesh Construction Sequence from a Silhouette Image**

I-Chao Shen, Yu Ju Chen, Oliver van Kaick, Takeo Igarashi

arxiv preprint ([arxiv:2203.15233](https://arxiv.org/abs/2203.15233))

**StylePart: Image-based Shape Part Manipulation**

I-Chao Shen, Li-Wen Su, Yu-Ting Wu, Bing-Yu Chen

arxiv preprint ([arxiv:2111.10520](https://arxiv.org/abs/2111.10520))

## Workshop Papers, Short Papers, Posters

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**OVERPAINT: Automatic Multi-Layer Stencil Generation without Bridges**

Yuta Fukushima, Anran Qi, I-Chao Shen, Takeo Igarashi

SIGGRAPH ASIA 2022 Technical Communication

**Guided Image Weathering using Image-to-Image Translation**

Li-Yu Chen, I-Chao Shen, and Bing-Yu Chen

SIGGRAPH ASIA 2021 Technical Communication

**Real-time Image-based Virtual Try-on with Measurement Garment**

Toby Chong, I-Chao Shen, Yunfei Qian, Nobuyuki Umetani, Takeo Igarashi

SIGGRAPH ASIA 2021 Emerging Technologies

**Transferring Deep Reinforcement Learning with Adversarial Objective and Augmentation**

I-Chao Shen, Shu-Hsuan Hsu, and Bing-Yu Chen

IJCAI-PRICAI 2020 Workshop on Knowledge-Based Reinforcement Learning (KBRL)

**Large-scale fabrication with interior zometool structure**

Ming-Shiuan Chen, I-Chao Shen, Chun-Kai Huang, and Bing-Yu Chen

ACM SIGGRAPH Poster Program 2018

**A Deep Learning Based Method For 3D Human Pose Estimation From 2D Fisheye Images**

Ching-Chun Chen, Chia-Min Wu, I-Chao Shen, and Bing-Yu Chen.

ACM IUI Poster Program 2018

**Retargeting 3D objects and scenes**

Chun-Kai Huang, Yi-Ling Chen, I-Chao Shen, and Bing-Yu Chen

ACM SIGGRAPH Poster Program 2015

**Painting Photolization**

Chien-Wen Jung, I-Chao Shen, Sheng-Jie Luo, Bing-Yu Chen, and Wen-Huang Cheng

ACM SIGGRAPH ASIA Poster Program 2013

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## Texturing and Deforming Meshes with Casual Images

[I-Chao Shen](#), Yi-Hua Wang, Yu-Mei Chen, Bing-Yu Chen, and Wen-Huang Cheng  
ACM SIGGRAPH ASIA Poster Program 2012

## User-Assisted Disparity Maps

Hsin-Yi Chen, Yi-Shan Lin, [I-Chao Shen](#), Sheng-Jie Luo, Wen-Huang Cheng and Bing-Yu Chen  
Pacific Graphics 2012 short paper

## MusicSpace: You “Play” The Music

Chun-Yu Tsai, Hung-Jung Lin, Tzu-Hao Kuo, Kai-Yin Cheng, [I-Chao Shen](#) Bing-Yu Chen, and Rung-Huei Liang  
ACM SIGGRAPH Poster Program 2010

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## Patent

### Smoothing images using machine learning

Nathan A Carr, Zhaowen Wang, Duygu Ceylan, [I-Chao Shen](#)  
United States Patent, No. 9799102, issued October 24, 2017.

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## Grants

JSPS Kakenhi Grant-in-Aid for Young Scientists, Japan	2023-2028
AIP Challenge Researcher, Japan Science and Technology Agency (JST), Japan.	2021 - 2022
JSPS Grant-in-Aid for Scientific Research for JPSP foreign fellow, Japan.	2021 - 2023

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## Honors

IPPR Best Ph.D. dissertation award, Honorable mention	2021
JSPS Postdoctoral Fellowship for Foreign Researchers	2020 - 2022
MediaTek Fellowship	2017 - 2020

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## Invited Talks

Computer Graphics around you everyday and how to become a Computer Graphics researcher, <i>Chikushigaoka High School, Fukuoka, Japan</i>	July. 2022
Computer Graphics around you everyday and how to become a Computer Graphics researcher, <i>Tokyo Metropolitan Tama High School of Science and Technology, Tokyo, Japan</i> JSPS science dialogue program	July. 2022
Per Garment Capture and Synthesis for Real-time Virtual Try-on, <i>JST CREST 8th Research Area Meeting</i>	Sep. 2021
2D Visual Content Design Driven by Human-Guided Optimization, <i>The University of Tokyo, Tokyo, Japan</i>	Apr. 2021

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## Media

<b>Per Garment Capture and Synthesis for Real-time Virtual Try-on</b>	2021, 2022
- BS フジ - ガリレオ X 第 259 回「現実空間 × 仮想空間二つの世界を重ねる最新技術」(JP)	
- JST News	
- NIKKEI (JP)	
- ZAIKEI (JP)	
- TechCrunch Japan (JP)	
- Tii 技術情報 (JP)	
- Independent TV (UK)	

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## Professional Services

- **Committee:**
  - AAAI (2023)
- **Reviewer:**
  - SIGGRAPH, SIGGRAPH ASIA
  - Eurographics
  - CHI
  - Pacific Graphics
  - CAD/Graphics
  - Transaction on Multimedia
  - VRST
  - WACV
  - BMVC

## References

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### **Takeo Igarashi**

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### **Bing-Yu Chen**

Professor in Department of Computer Science and Engineering / Information Management, National Taiwan University

**Email:** [robin@ntu.edu.tw](mailto:robin@ntu.edu.tw)

### **Yung-Yu Chuang**

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